NAVMAN

Contents

1.0   Tracker500/500i Introduction

Congratulations on purchasing a Navman Tracker500/500i track plotter. The Tracker500/500i is a compact, ruggedly built, highly integrated navigation instrument that has been designed for ease of use. With this instrument you will be able to display your boat's position, track and destination. Complex navigation functions can be performed with a few simple key presses, taking the hard work out of navigation. Tracker500i owners have the option of using the integrated fuel computer to keep track of their boat's fuel usage. The fuel computer is suitable for all petrol engine boats, either inboard or outboard, and single or twin engine. Fuel transducers must be purchased separately.

1.1   The Global Positioning System (GPS)

The GPS constellation comprises 24 satellites orbiting the earth, providing a worldwide system for determining position. From any one point on the earth's surface up to 12 satellites are "visible" to the GPS receiver. The positions of these satellites are constantly changing. The Tracker500/500i antenna tracks all visible satellites simultaneously and selects four or more satellites that produce the optimum geometry and signal quality for determining an accurate value of the boat's latitude and longitude. The superior performance achieved with the Tracker500/500i 12 channel receiver provides increased accuracy and reduced Time to First Fix (TTFF).

> *Note: The USA Department of Defence introduces a varying offset, known as Selective Availability (SA), to degrade the accuracy of the civilian GPS signal. As an approximate guideline it is generally assumed that the accuracy obtained with SA active causes the GPS derived position to be within 100 metres of the true position 90% of the time and within 50 metres of the true position 50% of the time. On brief occasions the SA can cause the position error to exceed 300 metres.*

> *The constantly varying SA offset causes small errors in the indicated boat speed and heading that may be noticeable at speeds of 5 knots or less. The position, speed and heading errors have been deliberately designed into the system and affect all GPS receivers in the same way. They can be eliminated by connecting a differential (DGPS) receiver to the Tracker500/500i. This receives corrections from a fixed base station that is able to measure the introduced SA offset.*

> *In times of military conflict, the USA Department of Defence has been known to turn the civilian GPS signal off. This is an extremely rare event, but should be guarded against by always having a secondary means of navigation to fall back on. The warning screen that appears each time the Tracker500/500i is turned on has a reminder to this effect.*

1.2   Commonly Used Terms

Waypoints   Positions such as fishing spots, favourite anchorages, dive locations and trip destinations can be saved in the Tracker500/500i memory. These are referred to as waypoints. Up to 500 waypoints can be stored in memory. The Tracker500/500i will automatically allocate a name to a waypoint or the user can specify a name. Waypoints are created by saving the boat position, saving the screen cursor position or by entering the latitude and longitude of a location.

Marks   Marks are temporary waypoints. They are created by a single press of the power on/off key. Marks can be created at any time, regardless of the screen currently

displayed. Pressing the Mark key will save the current boat position with a temporary name in the range of MARK0 to MARK9. Marks are saved separately from normal waypoints. They are simpler to create and display and are intended to provide a simple method of marking temporary locations such as fish strikes. See section **12.0 Marks** for a more detailed description.

Route   Two or more waypoints can be linked in sequence to form a route. The route has a start and end waypoint and can be traversed from start to finish or in reverse. Up to 20 routes can be stored in memory.

Legs   Legs are the division of a route between waypoints. A route consisting of four waypoints will have three legs.

GoTo   The Goto function allows you to navigate from your current position to any waypoint or mark. The Tracker500/500i will guide you to your destination with a graphical highway screen and continuously updated navigational data.

1.3 Operating the Tracker500/500i

You can use your Tracker500/500i to get you back to a good fishing spot or to sail all the way around the world. It has been designed to be easy to use for those with no formal navigation training, but also provides accurate navigational information for the long distance sailor. No matter how long or short your journey, it will take you straight to where you want to go.

If your main interest is in returning to previously visited locations such as good fishing spots, you should start by reading section **11.2** on saving the current boat position as a waypoint, then section **10.0** on how to "goto" a waypoint. It is normally advisable to take the time to enter a descriptive name for the waypoint as it quickly becomes difficult to remember which is which when the number of waypoints has built up. Be sure to save the position of the launching ramp before you start out so that you can use the Tracker500/500i to find your way back if there is fog, rain, or it gets dark on the return journey. This also applies to any point on your outward journey where you have to change course, such as a channel between two islands.

Note the warning in section **1.1** on the position errors introduced by SA. If you do not have a differential (DGPS) receiver, don't try and navigate through narrow channels in reduced visibility or darkness unless you have a secondary method of determining a safe course, such as a marine chart and a depth sounder.

Working With Charts

If you want to navigate to a location that you don't already have saved as a waypoint, you will need to obtain its latitude and longitude from a marine chart. See section **11.2** on how to create a new waypoint and enter Lat/Lon values. A pair of dividers is normally used to measure latitude and longitude on a chart. To measure the latitude of a location, place one point of the dividers on the location and then adjust the dividers until the other point is straight above or below the first one and on the nearest horizontal grid line. Move the dividers along the grid line to the latitude scale on the side of the chart. Put one point on the grid line and the other on the latitude scale and read the value. It will be a number like 43°52·13´ N. A minute (´) is one sixtieth of a degree. The N indicates this location is in the northern hemisphere. Unless you have a chart that covers a very small area, you won't be able to read the latitude scale more accurately than two decimal places of minutes. The Tracker500/500i allows for three decimal places, so just put zero in the last place. The same method is used to measure the longitude, using a vertical grid line and the longitude scale at the top or bottom of the chart. The longitude will be a number like 010°32·95´ E. Three

digits are used for the degrees as longitudes can be as large as 180°. The E indicates this location is east of Longitude 000°, a vertical line through Greenwich (London). If you don't have a pair of dividers, you can use a ruler or even two pencil marks on the edge of a strip of paper.

When entering the Lat/Lon of a waypoint from a chart, it is essential that the Tracker500/500i is set to the same Lat/Lon datum that the chart uses (see section **15.0 Chart Datums**). This also applies if you are plotting the current boat position onto a chart. The datum will be given in the chart's title block.

If you use waypoints from a chart, it is a good idea to clearly mark the waypoints on the chart. Then, before you start navigating to a waypoint, you can draw a straight line from the boat's current position to the waypoint and check that it doesn't pass too close to any rocks or shoals. A similar idea is to enter any isolated rocks in your area as waypoints with the rock symbol (⚓). When you start navigation to a waypoint, the Tracker500/500i draws a line from the current boat position to the waypoint on its Trackplot screen. By looking at this screen you can check whether your intended course passes too close to any isolated rocks.
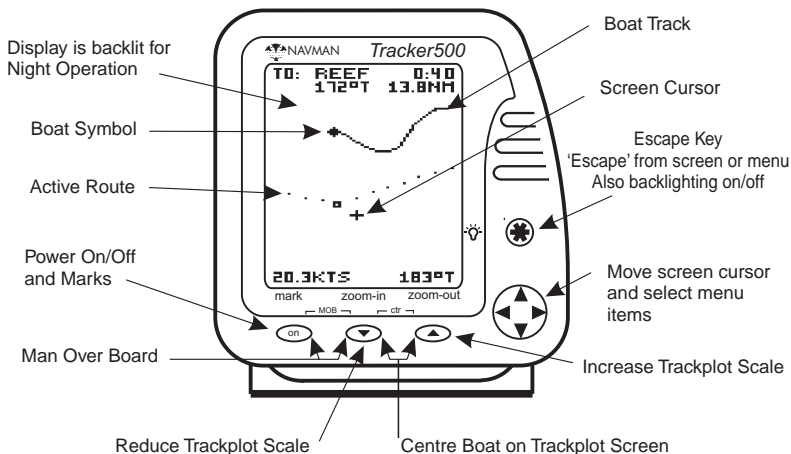
Fuel Functions

The fuel computer functions available in the Tracker500i enable you to keep track of how much fuel you have used, how much you have remaining, the rate at which fuel is being consumed, and how far you are travelling for every litre or gallon of fuel used. All this information is shown on one screen. The fuel used value can be cleared to zero at any time so that you can keep track of the amount of fuel used for each trip, or for each season, or since you bought the boat, according to your preference. The fuel remaining value, on the other hand, must be updated each time you refuel so that you always know how much fuel is left in the tank. There is a low fuel alarm associated with the fuel remaining value that can be set to warn you when the fuel in the tank falls below the alarm level. You can set the alarm level to suit the size of the boat's engine and the distance you intend to travel.

The fuel consumption (titled FLOW on the screen) in litres or gallons per hour is shown. For twin engine installations, the consumption for each engine is shown separately. This is useful for checking that both engines are under the same load.

As the Tracker500i has both boat speed and fuel consumption values, it is able to calculate the current economy rate. This is the distance the boat is travelling for every unit of fuel used. The economy rate figure, depending on which distance unit and fuel volume unit the Tracker500i is set to, will have units like miles per gallon or kilometres per litre. As the speed error cause by Selective Availability becomes significant at low boat speeds, the economy rate is not displayed for speeds of 5 knots or less. If the Tracker500i is receiving corrections from a differential receiver, the economy rate is displayed whenever the boat speed is above 1 knot.

2.0 Overview

Display is backlit for Night Operation

Boat Symbol

Active Route

Power On/Off and Marks

Man Over Board

Reduce Trackplot Scale

Centre Boat on Trackplot Screen

Boat Track

Screen Cursor

Escape Key 'Escape' from screen or menu Also backlighting on/off

Move screen cursor and select menu items

Increase Trackplot Scale

Power On/Off and Mark Key

The power on/off key performs a number of functions. Firstly, to switch on the Tracker500/500i, momentarily press the Power on/off key. To switch off, press and hold the key until the display becomes blank.

The Power on/off key also functions as the **mark** key. The **mark** key provides a quick method of saving the current boat position. See section **12.0 Marks**.

-MOB- Keys

Press the power on/off key and the **zoom-in** key together to activate the Man Over Board (MOB) function. See section **3.0 Man Over Board (MOB) Function** for further details.

Escape Key ✱

The ✱ key is used to back out of sub screens or sub menus. When stepping through Tracker500/500i screens you can press the ✱ key to return to the screen previous to the one currently displayed. Each time the ✱ key is pressed you will 'step back' one screen. The ✱ key is also used to control backlighting level. Press and hold the ✱ key to automatically step through five backlight levels. Release the key when the required backlight level is obtained.

Cursor Keys

The cursor keys control the movement of the screen cursor while in track plot mode. Movement in eight directions is possible. The cursor keys are also used to select and edit data such as setup information in the setup screens, waypoint data, and route configurations. See section **5.0** for further details. In simulation mode these keys control the simulated speed and heading.

zoom-in, zoom-out keys

The Zoom In and Zoom Out functions are only active while the Track Plot screen is displayed. The scale of the displayed track plot area can be instantly changed by pressing the **zoom-in** or **zoom-out** key. To see more detail press the **zoom-in** key. To see a larger area but less detail press the **zoom-out** key. When any list is displayed, such as waypoints or datums, the **zoom-in** key will step down through the list a screen at a time. The **zoom-out** key will step up through a list in the same manner.

-ctr- Keys

The centre function is also only active while the Track Plot screen is displayed. The centre function positions the boat in the centre of the Trackplot screen. Momentarily press the **-ctr-** keys to activate this function. This function is also an effective method of 'finding' the boat when initially not displayed on the screen.

3.0 Man Over Board (MOB) Function

The MOB function allows the boat position to immediately be saved as a waypoint named MOB, and to immediately start navigating to it. The MOB function can be activated from any screen.

The following sequence activates this function:

1. Momentarily press the keys labelled MOB (two left most keys). The current boat position is stored as a waypoint with the name MOB.
2. The Tracker500/500i beeps ten times to indicate that the MOB function has been initiated.
3. A user prompt will appear asking if you are ready to start navigating to the MOB location. This gives you the opportunity to disable the autopilot, if it is currently active. If the autopilot is not active, press the ▶ key to immediately start navigating to the MOB location.
4. The display mode is automatically changed to the Highway screen, with the Tracker500/500i navigating to the MOB waypoint.

4.0 Start-up Sequence

Press the power key to switch power on.

To switch power off, press and hold the power key until the display goes blank.

Immediately after power-up the unit will display the software version number and a GPS navigation warning.

Press any key to proceed and start normal Tracker500/500i operation. The satellite status screen will be displayed until the Tracker500/500i receives a valid position fix from the antenna or the ✱ key is pressed.

4.1 Satellite Status Screen
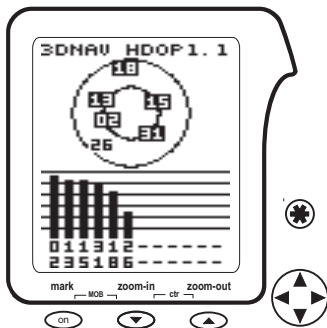
During satellite acquisition the satellite status screen displays the following information.

- The top left corner of the display indicates satellite acquisition status.

   ACQ   Receiving satellite data and acquiring a position fix.

   3D NAV   Obtained a valid three dimensional position fix.

   2D NAV   Obtained a limited, two dimensional, position fix. The altitude is locked to the last known altitude. This situation arises if the GPS receiver does not have a clear view of the sky and is unable to track all available satellites.

DIFF   Operating in differential GPS mode. Indicates that Tracker500/500i is receiving valid RTCM 104 data and that lat/lon values provided by the Tracker500/500i have had differential corrections applied.

Using differential GPS (DGPS) will improve receiver accuracy to 5-10 metres, regardless of errors induced by the USA Department of Defense Selective Availability program.

- The top right corner indicates the geometric accuracy of the position fix. A low number indicates a more accurate position fix.

- The central area of the display indicates the position of each satellite. The outer circle represents the horizon (north = top centre), while the inner circle represents 45° above the horizon. The centre point is directly overhead. Satellites used in the current position calculation are shown highlighted (reverse text).

- The lower part of the display is made up of a bar graph, indicating the signal strength of each satellite. Each of the horizontal lines is spaced 5dBHz apart with the lowest line representing 25dBHz.

The above information will remain displayed for 5 seconds after a position fix has been obtained. The acquisition process is fully automatic and requires no user intervention

Following the above power-up sequence the Tracker500/500i will display the main selection screen. See section **5.0** for more details.

4.2 Acquisition Period

The time from initial power-up to the time the Tracker500/500i calculates the latitude and longitude of the current position is known as the Time To First Fix (TTFF). The TTFF varies in relation to a number of factors, but primarily varies due to the amount of time that has passed since the Tracker500/500i last obtained a fix. If the Tracker500/500i has a clear view of the sky it will typically acquire a position in 45 seconds. The TTFF may extend out to a few minutes if the Tracker500/500i has not been used for periods longer than a few months. If the Tracker500/500i has moved a significant distance, typically greater than 500 km, since the last time it was used, it will automatically go into a cold start mode and "search" the sky for satellites. This is fully automatic and requires no user intervention. In cold start mode the TTFF may extend out to 8 minutes in the worse case. The TTFF is also influenced by the current satellite geometry and position of the antenna. The antenna must have an unobstructed view of the sky.

The Tracker500/500i will always do a cold start the first time it is turned on. Once it has obtained a fix, switch to the Trackplot screen and press the **-ctr-** keys to initialise the Trackplot screen boat and cursor positions.

5.0   Moving Around the Screens

After the power-up sequence has completed, as described in the previous section, the Main Selection screen will be displayed, as shown below.

All Tracker500/500i screens are accessed from this screen. Graphical screens showing boat position and navigation data are available from this screen, along with waypoint and route management features and instrument setup screens. The Satellite Status screen, displayed at power-up, can also be viewed using this menu.

5.1   Menus

The cursor keys are used to highlight menu items on screens such as the Main Selection screen, Setup, Waypoints and Routes screens. Press the ▲ or ▼ key to step up/down the menu items to highlight the item you wish to change or view. Press the ▶ key to select the highlighted item and move to the associated sub-screen. Press the ✳ key to return to the previous level.

The sub-screen selected may provide another list of related screens. The cursor keys can then be used to select a screen from the list, stepping down to the next level. This hierarchical approach of stepping through various levels of screens is used throughout the Tracker500/500i. It is important to note that you are able to step back to previous screens by pressing the ✳ key. Each time the ✳ key is pressed you will return to the previous screen displayed. Eventually, by repeatedly pressing the ✳ key, you will return to the Main Selection screen.

5.2   Changing Names or Numeric Values within data fields

The method described above also applies when a name or multi-digit number needs to be changed, for example waypoint names and waypoint lat/lon values. See section **11.0 Waypoints** for a detailed explanation of waypoints. Once information for a particular waypoint is displayed the ▲ or ▼ keys can be pressed to highlight the name or data you wish to change (waypoint lat/lon, symbol, etc).

After a value has been selected by pressing the ▶ key, the display will highlight the first character, indicating that you are able to change it. Press the ▲ or ▼ key to scroll through the letters of the alphabet and numbers 0-9. After you have reached the required letter or number press the ▶ key to move to the next character within the name or data. When you have completed all changes press the ✱ key to finish editing the value.

5.3 Screen Summary
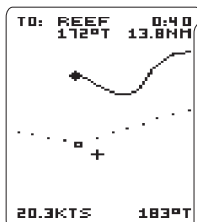
Trackplot Screen
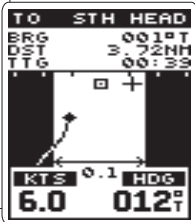
Highway Screen

Two graphical screens simplify navigation. The **Trackplot Screen** provides you with a graphical representation of your previous travel as well as your planned route. The **Highway Screen** provides graphical birds-eye-view roadway guidance to your destination
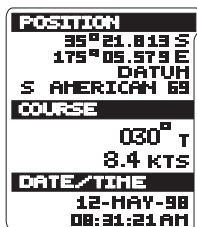
Navigation Data
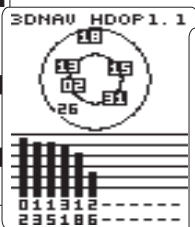
Satellite Status
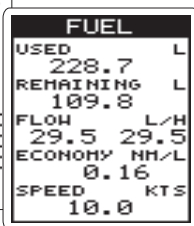
Fuel Data

Three data screens enable easy access to essential information such as navigation data, satellite status information, and fuel consumption/economy/used information.

Navigation functions, waypoint and route construction and general setup parameters are accessed from five main screens.

6.0   Trackplot Screen

The Tracker500/500i features a Trackplot Screen that plots your current position and course. The current vessel speed and heading are also shown in the lower section of the screen. To display the Trackplot screen select the TRACK function from the Main Selection screen. Details of the Trackplot screen are shown below.

The Trackplot screen shows the track of the boat as it moves. The boat position is saved in memory at regular intervals. These intervals can be time intervals or distance intervals.
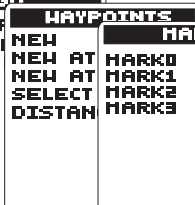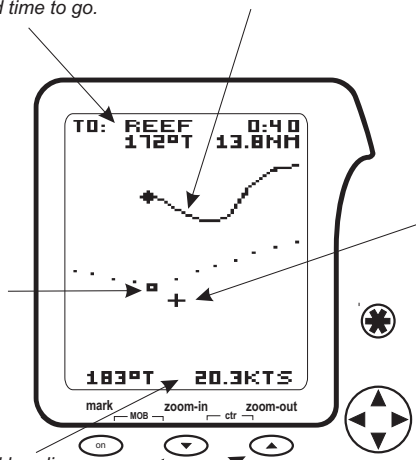
Destination Waypoint details such as distance to go, bearing to waypoint and time to go.

*Waypoint symbol. Seven waypoint symbols are available for indicating waypoints on the Trackplot screen. They are described in section **11.0 Waypoints**. To display a waypoint's name, move the cursor over the waypoint symbol. The name will appear in the upper section of the display.*

The Trackplot cursor is used to identify objects on the display and to move the viewable trackplot area. Shift the cursor off the edge of the screen to change the viewable area. Holding the cursor keys down will activate rapid movement.

If the cursor is moved, the latitude and longitude of the cursor position will be displayed in the upper section of the display for 5 seconds.

TO: REEF   0:40
172°T 13.8NM

183°T   20.3KTS

mark   zoom-in   zoom-out
— MOB —   — ctr —
on

Current boat speed and heading

The -ctr- keys centre the boat on the screen. Momentarily press both -ctr- keys to centre the boat. This method allows centring of the boat when initially not displayed on the screen.

*The scale of the displayed track plot area can be instantly changed by pressing the zoom-in or zoom-out keys. To see more detail press the **zoom-in** key. To see a larger area but less detail press the **zoom-out** key.*

Scale

The scale is momentarily displayed in the upper left corner of the Track Plot display whenever the cursor is moved or a zoom key is pressed. The scale can be adjusted from 0.1 to 500 miles/kilometres by pressing the **zoom-in** or **zoom-out** keys. The figure displayed is the vertical distance from the top to the bottom of the displayed area.

7.0   Position Screen

The Tracker500/500i's position screen displays navigation data, speed, course, etc, along with additional data not readily available from other screens.

The latitude and longitude of your current boat position is displayed at the top of the display along with the chart datum currently selected.
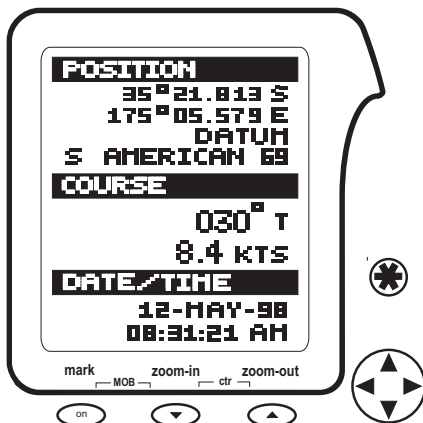
8.0 Highway Screen

This screen provides a graphic 'highway' that shows your movement relative to your desired course. The highway is drawn from your original start point to a selected destination point. In the Highway screen the destination is positioned at the top of the display and the boat position is automatically maintained in the central area of the display. A bird's-eye view of the highway is displayed on the screen. This provides a simple and effective method of seeing exactly where you are in relation to your intended course. The width of the highway can be set to between 0.1 and 5.0 miles or kilometres. The larger widths are mostly of interest to sailors who may have to tack up wind towards a waypoint.

> *Note: With no destination (waypoint) selected, this page is of limited use. The current speed and heading will be displayed on the lower section of the screen, but the remainder of the page will be inactive.*

The following diagram shows the information available on the Highway screen.
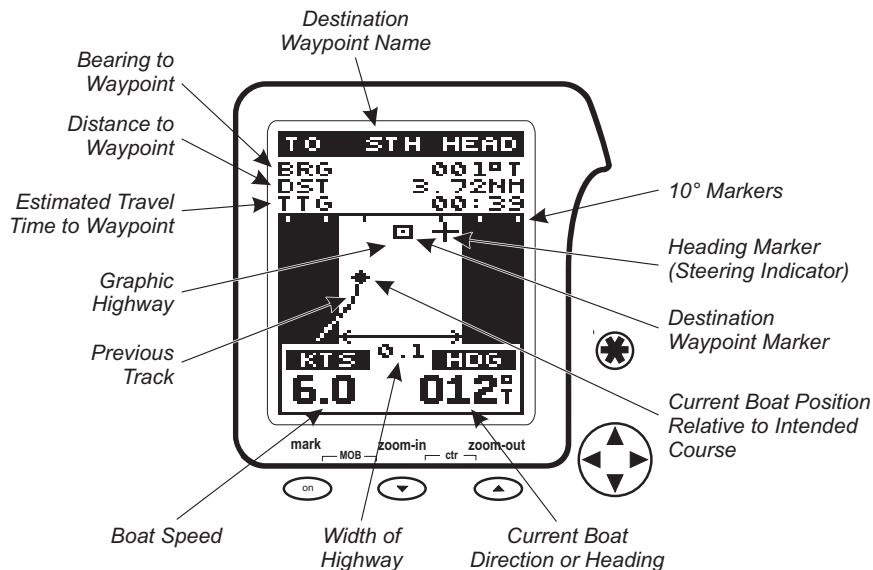
Your present position relative to your intended course is shown by the diamond in the centre of the highway. Your present heading, relative to the current direction to the waypoint, is indicated by the cross that slides along the horizon, while the destination waypoint is represented by the stationary box in the centre of the horizon.

If you deviate by more than 30° either side of the waypoint, the heading marker will remain hard against the edge of the screen.

9.0 Fuel Screen (Tracker500i only)

The Tracker500i has a comprehensive set of fuel management features. To utilise these features you need only purchase a Navman fuel flow transducer. This plugs into the 5 pin connector on the rear of the Tracker500i. For twin engine installations there is a kit containing two fuel transducers and a 'Y' cable to enable both transducers to be connected to the 5 pin connector.

The Navman fuel flow transducer has been specifically developed for use with petrol inboard and outboard engines. It is best suited to outboards from 30 to 300hp, and inboard engines from 45 to 450hp, but will operate outside these limits up to a maximum flow rate of 130 litres (35 US gallons) per hour, per engine.

Running the engine without the Tracker500i turned on will result in fuel use not being recorded. This will mean that the fuel remaining value will read higher than what is actually in the tank. Always turn your Tracker500i on immediately after starting your engine.
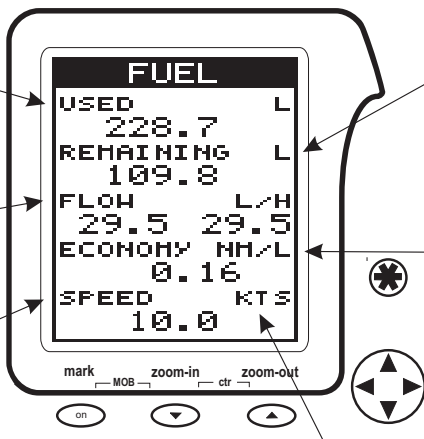
To display the Fuel screen, select the FUEL function from the Main Selection screen. Details of the Fuel screen are shown below.

The fuel used figure indicates the volume of fuel that the engine or engines have consumed in total since the figure was last reset.

Highlight this line, then press ▶ to access reset and calibration functions.

This indicates the averaged flow rate

Current boat speed

The fuel remaining amount is reduced as the fuel runs through the fuel transducer(s).

Highlight this line, then press ▶ to change the value or set the low level alarm.

The economy reading can enable you to see the most fuel-efficient speed to travel at. This figure is calculated from the speed and flow rate.

```
      FUEL
USED          L
     228.7
REMAINING     L
     109.8
FLOW        L/H
 29.5   29.5
ECONOMY    NM/L
      0.16
SPEED       KTS
      10.0
```

mark — MOB — zoom-in — ctr — zoom-out

on

The units selected in the Setup screen for distance and fuel volume will be used to display the figures in the most useful format for you.

Flow rate averaging

An engine does not draw fuel from the tank at a steady rate. Normally it will draw fuel at a relatively high rate for a few seconds until the carburettor bowl or fuel injection reservoir is full, and then draw no fuel for a few seconds. If this instantaneous flow rate were displayed, it would be too erratic to follow on screen. To improve the display, the Tracker500i averages the fuel flow rate.

The amount of time over which the averaging is done can be changed in the Setup screen (section **14.0 Setup**). The 'FLOW FLTR' (flow filter) value reflects the number of seconds

over which the average is taken. Usually a value of 10-15 seconds will give a satisfactory result for a carburettor engine. Fuel injected engines may require a larger value. Too high a flow filter value will slow down the display of real changes in flow rate when you change the throttle setting. This setting does not affect the fuel volume measurement, only the display of the flow rate.

Economy and speed

As the speed error caused by Selective Availability becomes significant at low boat speeds, the economy rate is not displayed for speeds of 5 knots or less. If the Tracker500i is receiving corrections from a differential receiver, the economy rate is displayed whenever the boat speed is above 1 knot.

The Tracker500/500i indicates speed over the sea bed. A speed/log instrument indicates speed through the water. If there is any tidal current, these two will be different.

9.1 Fuel used reset

This resets the fuel used figure to 0.0.
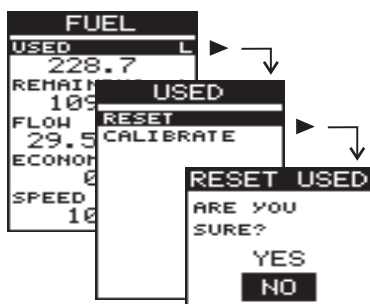
9.2 Fuel used calibration (Transducer calibration)

Without calibration, accuracy can be expected to be better than 10%. By recording the actual fuel usage of your boat over a period of time, it will be possible to adjust the Tracker500i to give consistently accurate readings within a 2% tolerance.

In a twin engine installation you can calibrate the port and starboard transducers independently.

To calibrate your fuel transducer you will need to accurately measure the fuel used. This is most easily done with a small portable tank. It should be noted that, due to air pockets, it is very difficult to fill under-floor tanks to the same level twice. At least 15 litres should be used to ensure an accurate calibration. Each transducer in a twin engine installation must be calibrated. This may be done at the same time with two portable tanks, or at different times with one tank.

The procedure is as follows:

1) Reset the fuel used amount on the Tracker500i to 0.0
2) Connect the measurement tank(s) to the engine(s) via the fuel transducer(s).
3) Run the engine(s) at normal cruising speed until at least 15 litres is indicated (30 for twin engines).
4) Check the actual amount of fuel used per engine. The easiest way to do this is to refill the tank(s) to the original level(s) and record the value(s) shown on the fuel dispenser.
5) Select the fuel calibrate value. The amount that the Tracker500i has recorded is displayed. Use the cursor keys to enter the actual fuel amount used. Press Esc when the value is set. Confirm that you want to save the changes. (Repeat for other engine in twin engine installation).

Single Engine   **Twin Engine**
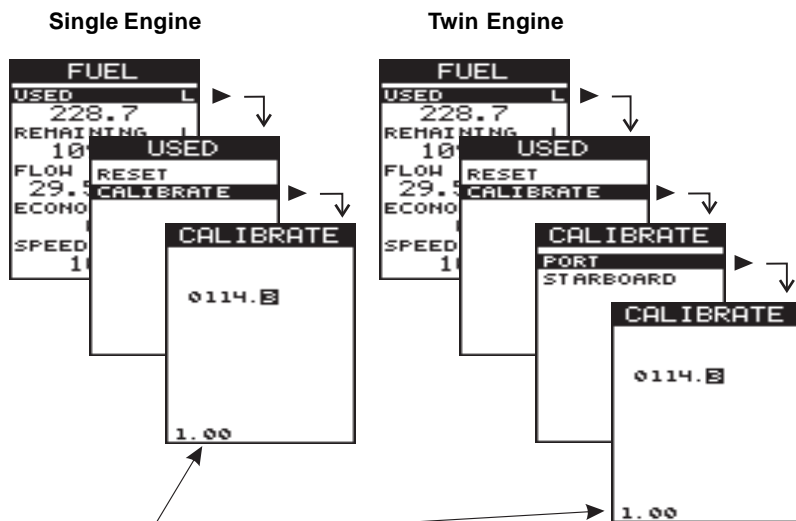
This is an indication of the calibration factor.
It will be 1.00 as a default.

9.3 Fuel remaining change

The fuel remaining value must be changed manually each time you change the amount of fuel in the tanks (e.g. filling, swapping or syphoning tanks). If it is not, this figure will be meaningless.
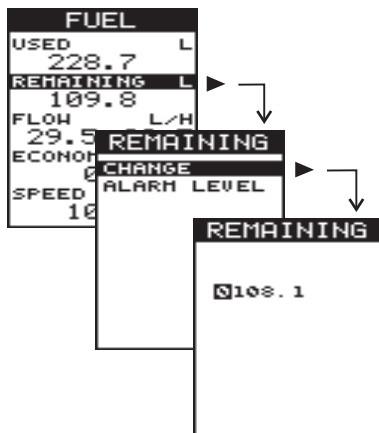
9.4 Fuel remaining low alarm

You can use this feature to warn you when your fuel remaining drops below a certain value. The value can be set from 1-9999. When the level drops below the value set, a message box saying "Fuel low alarm" will display, and the unit will beep until "OK" is selected. While the remaining amount is below the alarm amount, the alarm will re-activate whenever the unit is switched on, or the fuel remaining amount or low alarm value is changed. The fuel alarm may be totally disabled by setting the alarm value to 0.
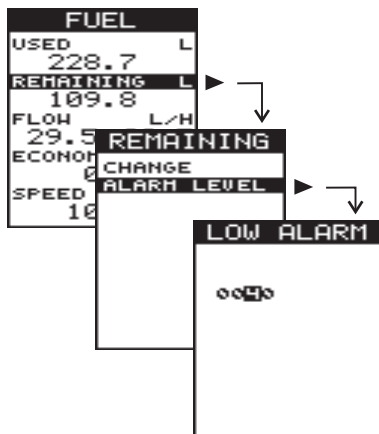
10.0 GoTo

The GoTo function provides a simple method of navigating from the current boat position to a waypoint or mark.

The GoTo sub-screen that can be selected from the Main Selection screen gives the options to GoTo a waypoint or mark, or to Go Along a route. Each of these options will bring up the appropriate list of destinations. Selecting a destination will start the navigation process and switch to the Highway screen. The Tracker500/500i will display the distance, time and bearing to the destination waypoint. It can also guide a NMEA compatible autopilot to the destination waypoint.
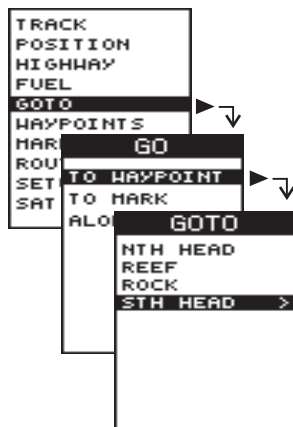
There are several other methods of activating the GoTo function:

• From the Trackplot screen, position the cursor over a waypoint or mark. Press and hold the **zoom-out** key until the waypoint or mark details are displayed. Select the GoTo option from this screen.

• From the Waypoints or Marks sub-screens, select your destination. A waypoint or mark details screen will be displayed. Select the GoTo option from this screen.

• From the Routes sub-screen, select the route you want to traverse. Then select the Go Along option.

Cancel GoTo

To deactivate the GoTo function simply select STOP NAV from the Main Selection page. A message will be displayed asking you for confirmation that you wish to stop navigating to the current waypoint.
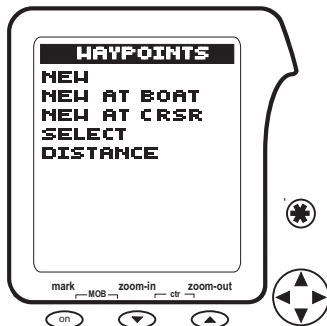
11.0 Waypoints

The GPS receiver of the Tracker500/500i provides current position, speed and direction information which can be viewed on the Position screen. But knowing your position is only a small part of navigation. You also need to keep track of where you have been and where you are going. Waypoints are electronic markers stored by the Tracker500/500i and are used to keep track of start points, destinations, objects of interest, and any other important position.

A waypoint is a named location with an associated latitude and longitude. You can GoTo waypoints and include them in routes. They can be moved, deleted or renamed. A choice of symbols are available for displaying them on the Trackplot screen.

11.1 Waypoints Screen

The Waypoints screen displays a list of waypoint functions. These functions allow you to create a new waypoint or select an existing waypoint to examine or change. A waypoint can be created by manually entering a lat/lon value or by saving the current boat position or Trackplot screen cursor position.

There are two methods of displaying the Waypoints screen.

Firstly, Waypoints can be selected from the Main Selection screen. Alternatively, a short cut method of displaying the Waypoints screen is available. From the Trackplot screen, press and hold the **zoom-out** key until the Waypoints screen is displayed.

> *Note: Using the short-cut method described above, the trackplot screen cursor must not be positioned over an existing waypoint. If the Trackplot screen cursor is positioned over an existing waypoint, the shortcut key press will take you directly to a screen displaying the details for that particular waypoint.*

11.2 Creating Waypoints

The Tracker500/500i allows you to store and use up to 500 waypoints. There are three methods of creating waypoints as described in the following sections.

Creating a New Waypoint

You can create a new waypoint by directly entering a lat/lon value and waypoint name. To do this you must first display the Waypoints screen. The Waypoints screen can be selected from the Main Selection screen or entered directly from the Trackplot Screen by holding down the **zoom-out** key, as described previously.

From the list displayed in the Waypoints screen, select the NEW option. A new waypoint will be created and saved into memory, with a default lat/lon, symbol and a default name in the range WPT00001-WPT00500. A Waypoint Details screen, as shown below, will be displayed for the new waypoint. The options available from the screen are described later in this section. Select EDIT to enter the required lat/lon and optionally change the name and symbol.

> *Note: When a new waypoint is created the Tracker500/500i will enter default values for the waypoint name and lat/lon. The lat/lon value will be the position of the cursor as displayed on the Trackplot screen. For this reason it is advisable to display the Trackplot screen and position the cursor near the location of the new waypoint. This will simplify the process of manually entering lat/lon values. The initial default values will be similar to the values you require.*

Saving the current boat position

From the list displayed on the Waypoints screen, select the NEW AT BOAT option. A new waypoint will be created and saved into memory, with a default name in the range WPT00001- WPT00500, a default symbol and the boat's current latitude and longitude. A Waypoint Details screen will be displayed for the new waypoint. The options available from this screen are described later in this section. Select EDIT to change the name and/or symbol.

Saving the current cursor position

On the Trackplot screen move the cursor to the required location of the new waypoint. Press and hold the **zoom-out** key to display the Waypoints screen. Selecting the NEW AT CRSR option initiates an operation identical to NEW AT BOAT (see above), except that the current cursor lat/lon is used instead of the current boat lat/lon.

11.3 Viewing Waypoint Details

To view waypoint details you can select an existing waypoint from the list of waypoints. This option is available from the Waypoints screen, as described below. Alternatively, you can display waypoint details for a particular waypoint directly from the Trackplot screen. Position the cursor over the waypoint and press and hold the **zoom-out** key until the waypoint details appear on the display. Both methods are illustrated below.

From The Waypoints Screen.

1. Use the cursor keys to choose SELECT from the **Waypoints screen**.

WAYPOINTS
NEW
NEW AT BOAT
NEW AT CRSR
SELECT
DISTANCE

2. Select the required waypoint from the list of waypoints stored in memory

NTH HEAD
REEF
ROCK
WPT00001
STH HEAD

3. The waypoint name and lat/lon will be displayed. To change waypoint information such as name, lat/lon or symbol, select the EDIT function from the list of available functions.

WPT00001
35°18.219 S
175°07.835 E
GOTO
SHOW
EDIT   >
DELETE
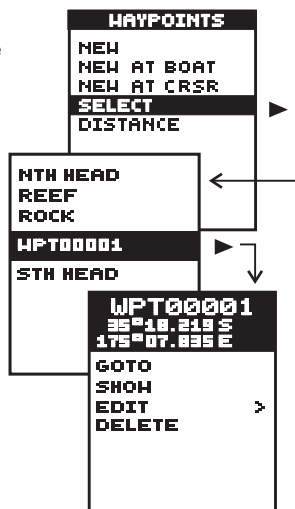
From The Trackplot Screen.

1. Use the cursor keys to position cursor over the required waypoint. The waypoint name will appear in the top section of the Trackplot display.

```
HOLD ZOOM-OUT TO
SELECT STH HEAD



       -P

2.5 KTS      270°T
```
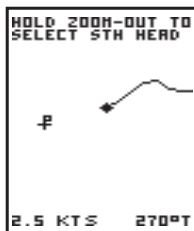
2. Press and hold the **zoom-out** key until the Waypoint Details are displayed.

zoom-out

```
WPT00001
35°18.219 S
175°07.835 E
GOTO
SHOW
EDIT        >
DELETE
```

3. The waypoint name and lat/lon will be displayed. To change waypoint information such as name, lat/lon or symbol, select the EDIT function from the list of available functions.

11.4 Changing Waypoint Details

To change the lat/lon value, waypoint name or waypoint symbol, display the Waypoint Edit screen by selecting EDIT from the Waypoint Details screen.

```
EDIT  WPT
WPT00001


 35°18.219 S
175°07.835 E
```

mark   zoom-in   zoom-out
    MOB   ctr
  on

Waypoint Symbols
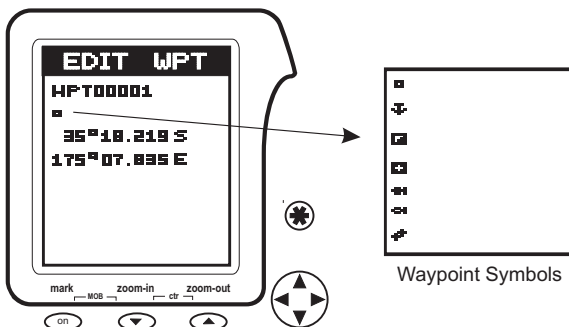
To edit the data on this page use the cursor keys to highlight the desired item and press the ▶ key to select it. Then use the ▲ and ▼ cursor keys to change the first character. These keys are used to scroll through the letters of the Alphabet and numbers 0-9. After the changes have been completed press the ▶ key to move to the next character or press the ✳ key to

terminate editing of this data field. At the completion of all changes press ✱ again and you will be prompted with a screen asking for confirmation to save the changes to memory. Select YES to save the changes to memory.

11.5 Displaying a Waypoint

If you are unsure of the location of an existing waypoint, you can use the Show function to display the waypoint in the centre of the Trackplot screen. This allows you to see where it is in relation to other waypoints and the current boat position.

1. Display the Waypoint Details screen for the waypoint you wish to find by selecting it from the list of waypoints.

2. Use the cursor keys to select the SHOW function. The Trackplot screen will be displayed with the waypoint located in the centre.

11.6 Deleting a Waypoint

1. To permanently delete a waypoint from memory, display the Waypoint Details screen for the waypoint you wish to delete, as described in section **11.3**.

2. Use the cursor keys to select the DELETE function. The Waypoint will be permanently removed from the Tracker500/500i memory.

11.7 Distance Calculations

The final waypoint function available is the distance and bearing calculator. The following diagram illustrates the method used to determine distance and bearing between waypoints.

1. Use the cursor keys to select DISTANCE from the Waypoints screen.

```
WAYPOINTS
NEW
NEW AT BOAT
NEW AT CRSR
SELECT
DISTANCE        ▶
```

2. Select the start and end waypoints from the list of waypoints stored in memory

```
START WPT       ◀
MTH HEAD
REEF
ROCK
WPT00001        ▶
STH HE
```

```
END WPT
MTH HEAD
REEF            ▶
ROCK
WPT00001
STH HEAD
```

3. The Distance screen will be displayed, showing the distance and bearing from the start waypoint to the end waypoint.

```
DISTANCE
FROM WPT00001
TO      REEF
BRG   123°T
DST   2.34NM
```
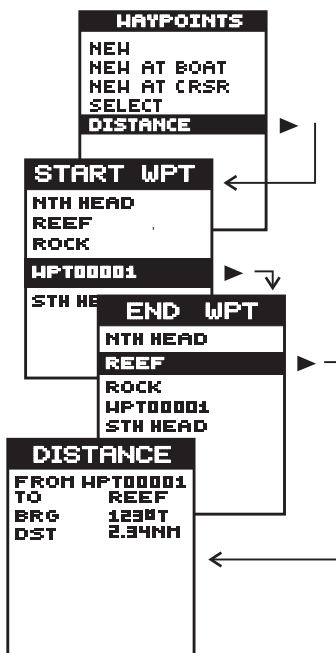
12.0 Marks

Marks are temporary waypoints. They are saved separately from waypoints, making them easier to find, change or delete. Marks are created by momentarily pressing the power on/off key. This will save the current boat position with a temporary name in the range of MARK0 to MARK9. Up to ten Marks can be saved in this manner. If more than ten Marks are created, the oldest ones will be overwritten by the more recent ones. There is a Mark Details screen in the same way as there is a Waypoint Details screen. The Mark Details screen can be displayed either by positioning the cursor over the mark on the Trackplot screen and holding down the **zoom-out** key, or by selecting the mark from the list displayed by the MARKS option on the Main Selection screen.

The symbol for a Mark is:

12.1 Converting Marks to Waypoints

Marks can be converted to Waypoints by selecting the SAVE AS function from the Mark Details screen.

From The Trackplot Screen

1. Use the cursor keys to position the Trackplot cursor over the required Mark. The Mark name will appear in the upper section of the Trackplot display.

2. Press and hold the z**oom-out** key until the Mark Details screen is displayed.

3. Select **SAVE AS** from the list of available functions.

4. An edit screen will be displayed, allowing you to change the name of the waypoint and the waypoint symbol. Use the cursor keys to edit these.

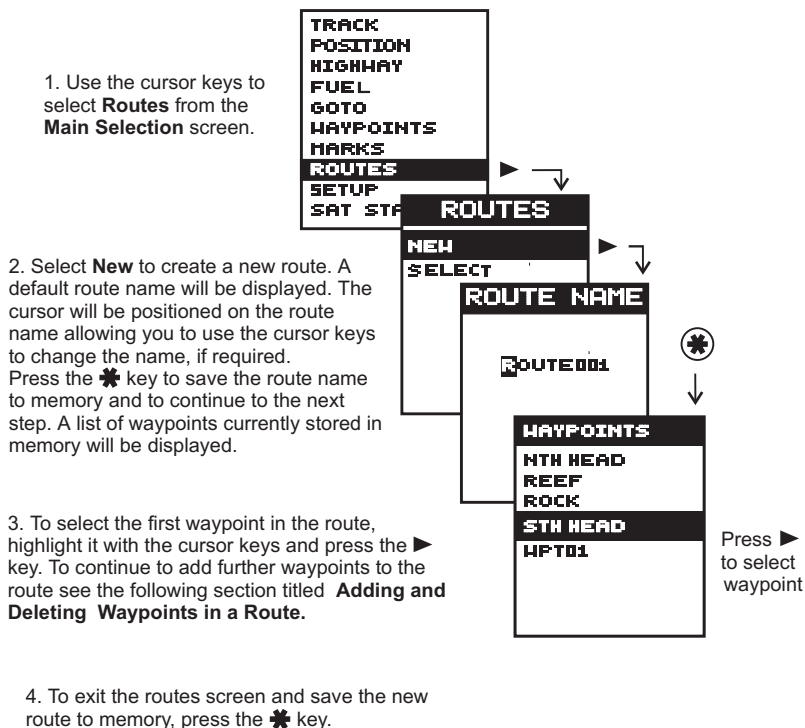5. Press ✳ to save the changes to memory.

13.0 Routes

A route is a sequence of waypoints that are traversed in order. A route can consist of any number of waypoints from a minimum of two to a maximum of 20. Routes can be started from any waypoint within the route and can be traversed in either direction.

The Routes screen can be accessed from the Main Selection screen. The Routes screen has options for creating, editing and activating routes.

> *Note: While a route is active you can create new routes or edit other existing routes in memory. However, you can not edit the current active route or any waypoints within the active route.*

13.1 Creating a New Route

A route is created by selecting the waypoints in the route from those currently in memory.

1. Use the cursor keys to select **Routes** from the **Main Selection** screen.

```
TRACK
POSITION
HIGHWAY
FUEL
GOTO
WAYPOINTS
MARKS
ROUTES        ►
SETUP
SAT STA
```

2. Select **New** to create a new route. A default route name will be displayed. The cursor will be positioned on the route name allowing you to use the cursor keys to change the name, if required.
Press the ✱ key to save the route name to memory and to continue to the next step. A list of waypoints currently stored in memory will be displayed.

```
ROUTES
NEW           ►
SELECT
```

```
ROUTE NAME

ROUTE001
```

✱

3. To select the first waypoint in the route, highlight it with the cursor keys and press the ► key. To continue to add further waypoints to the route see the following section titled **Adding and Deleting Waypoints in a Route.**

```
WAYPOINTS
NTH HEAD
REEF
ROCK
STH HEAD
WPT01
```

Press ► to select waypoint

4. To exit the routes screen and save the new route to memory, press the ✱ key.

Creating a New Route

13.2 Adding and Deleting Waypoints in a Route

Waypoints within a route can be deleted and new waypoints can be added, providing the route is not currently active.

1. Choose **Select** to see the list of routes currently stored in memory.

2. Select the route you wish to edit from the list.

3. Select the EDIT option.

4. The list of waypoints included in the route will be displayed. Move the cursor to the waypoint you wish to delete. Alternatively, if you wish to insert a new waypoint, move the cursor to the line above or below the point at which you wish to insert it. Press the ► cursor key to display the possible actions.

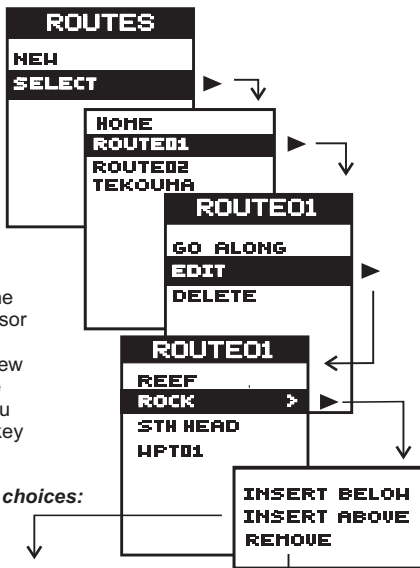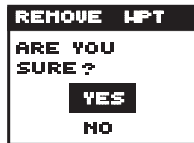*Examples of the two possible choices:*

Insert Waypoint

You have the option of inserting the new waypoint either above the point you highlighted or below it.

Remove Waypoint

Adding and Deleting Waypoints in a Route

13.3 Starting and Cancelling Routes

To start traversing a route, it must first be selected from the list of previously created routes. The route can be traversed in the forward direction or in the reverse direction, allowing you to return along the same route. You can also choose any waypoint in the route as the start waypoint.

> *Note: To cancel an active route select STOP NAV from the Main Selection screen. A message asking you to confirm that you wish to cancel the active route will be displayed.*

1. Choose **Select** to see the list of routes currently stored in memory.

2. Select the route from the list.

3. Select **Go Along** from the list of available functions.

    4. Choose whether to traverse the route in the forward direction or the reverse direction.

5. The list of waypoints included in the route will be displayed. Move the cursor to the first waypoint you wish to head towards. By default, the first waypoint in the route will be highlighted. Press the ▶ cursor key to start the route from the highlighted waypoint.

ROUTES
NEW
SELECT

HOME
ROUTE01
ROUTE02
TEKOUMA

ROUTE01
GO ALONG
EDIT
DELETE

FORWARD
SE

RAMP
BUOY1
STH HEAD

Starting a Route

13.4 Deleting a Route

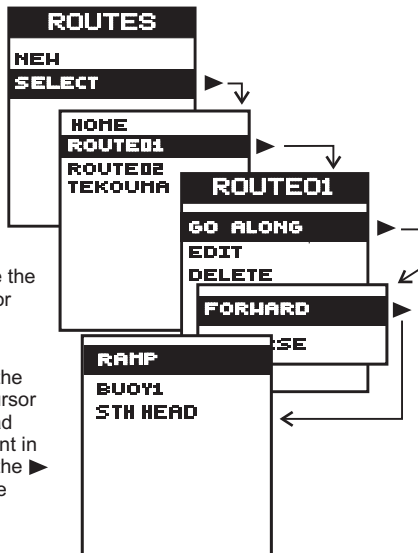The following sequence removes an existing route from memory.

1. Choose **Select** to see the list of routes currently stored in memory.

2. Select the route from the list.

3. Select **Delete** from the list of available functions.

4. Confirm that the route is to be deleted.

ROUTES
NEW
SELECT

HOME
ROUTE01
ROUTE02
TEKOUMA

ROUTE01
GO ALONG
EDIT
DELETE

DELETE ROUTE
ARE YOU
SURE
YES
NO
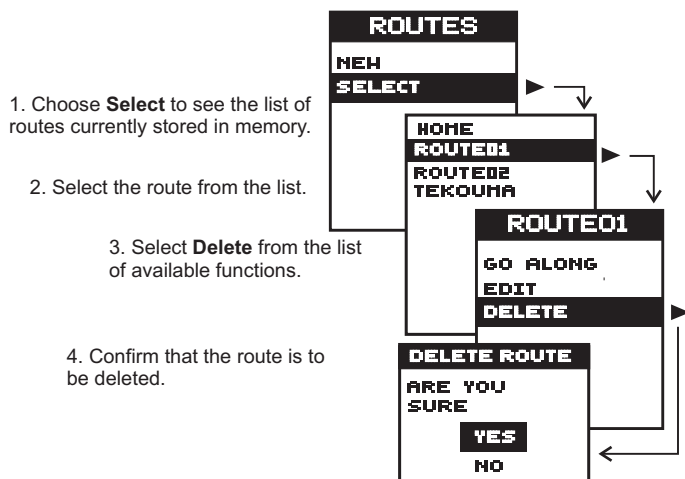
Deleting a Route

14.0 Setup

Select Setup from the Main Selection screen to access the Tracker500/500i setup functions. See section **5.0** for a detailed description of using the cursor keys to select menu items and changing data fields.

On the Setup screen and its sub-screens, where there is a value on the end of a highlighted menu line, this can be changed by pressing the ▶ or ◀ cursor keys. The ▶ key will step forward through the list of available values and the ◀ will step in the reverse direction.

TRACK	TRACK CLEAR	Clears the track of the boat from the Trackplot Screen. The Tracker500/500i will immediately start recording a new track if Track is enabled.
	TRACK ON/OFF	Enable/Disable saving of boat track.
	MODE	To obtain a track history, the Tracker500/500i saves the boat position to memory at regular intervals. These intervals can be time intervals or distance intervals. The MODE setting allows you to select time or distance intervals.
	INTRVL	The selectable time interval range is 10 seconds to 1 hour. The selectable distance interval range is 0.1 to 5 miles/kilometres.
HIGHWAY	Highway screen road width. Range 0.1 to 5 miles/nautical miles/ kilometres.	
DATUM	GPS derived positions are based on a worldwide reference (datum) known as WGS 1984. Many charts are based on datums other than WGS 1984. This results in an offset between a Lat/Lon plotted on the chart and the same Lat/Lon plotted on the Tracker500/500i. To match the Tracker500/500i with your chart you must enter the datum shown on the chart. Alternatively, if your datum is not included in the list of datums, you can enter an offset value to ensure the displayed lat/lon values match the chart. Once you have entered a datum or offset values for your chart, all latitudes and longitudes, including waypoints, will match the chart.	
	USE	This option allows you to set the Tracker500/500i to use either a datum or a position offset. The currently selected datum and position offset values are displayed in the bottom half of the screen. The selected correction method has a box drawn round it.
	POS.OFS. >	Position Offset edit window. Enter offset values in the range 0.000 – 9.999 minutes.
	DATUM >	Select this option to choose from the list of 106 available chart datums.

BEARINGS	The Tracker500/500i automatically calculates the magnetic variation for the location in which it is situated. Consequently, all bearings and course directions can be displayed either relative to true North or magnetic North. Select TRU or MAG as required.	
UNITS	The Tracker500/500i has three units of measure; Nautical miles, Statute (land) miles and Kilometres. This setting applies to all distance and speed readings displayed on the Tracker500/500i.	
TIME	OFFSET	This is the time offset from your time zone to Greenwich Mean Time (GMT). Range +/- 13 hours in steps of 30 minutes.
	12/24HR	Sets the time display to be in either 12 hour or 24 hour format.
FUEL	ENGINES	Choose the number of petrol engines, 1 or 2.
	VOL UNIT	Select the unit of measure for volume; litres, Imperial gallons, or U.S. gallons.
	FLOW FLTR	Adjust the amount of averaging of the fuel flow rate. Range 1–60.
DISPLAY	CONTRAST	Display Contrast. This adjustment enables you to obtain the optimum display appearance. Set the level for optimum display contrast. Range 0–10.
	BACKLIGHT	Display backlight intensity. Range 0–15.
LANGUAGE	English, French, German, Swedish, Spanish, Dutch, Italian.	
SIMULATE	Simulation mode provides a method of becoming familiar with the Tracker500/500i functions. Boat movement is simulated and all navigation functions are available. Setting SIMULATE to ON generates a simulated boat with an initial position at the current position of the Trackplot screen cursor, with zero speed and heading. To change the speed and heading, switch to the Highway screen and use the cursor up and down keys to change speed, and left and right to change the boat's heading.	

15.0 Chart Datums

GPS derived positions are based on a worldwide reference (datum) known as WGS 1984. Many charts are based on datums other than WGS 1984. This results in an offset between a Lat/Lon plotted on the chart and the same Lat/Lon plotted on the Tracker500/500i. To match the Tracker500/500i with your chart you must enter the datum specified on the chart. See section **14.0 Setup** for details on how to select a chart datum. Once your local datum has been entered, all latitudes and longitudes, including waypoints, will match the chart.

> *Note: When using a number of charts with different datums it is important to ensure that you change the datum to match the chart currently being used. If the destination waypoint is on a different chart, be sure to change to that chart's datum before entering the latitude and longitude of the destination waypoint.*

Alternatively, you can manually enter a lat/lon offset value to bring the displayed lat/lon values in line with the chart you are using. See the Setup screen for details on how to enter a lat/lon offset. The lat/lon offset function is typically used to match the Tracker500/500i with older charts where an island may have a large position error, but all points around the island have the same error.

Tracker abbreviation	Datum name	Datum code	Locality
ADINAN	Adindan	ADI-M	Ethiopia, Sudan
AFGOOYE	AFGOOYE	AFG	Somalia
AINELABD 70	AIN EL ABD 1970	AIN-A	Bahrain Island
AMRICN SAMOA	American Samoa 1962	AMA	American Samoa Islands
ANNA 1 AST65	Anna 1 Astro 1965	ANO	Cocos Islands
ANTIGUA	Antigua	AIA	Leeward Islands
ARC 1950	ARC 1950	ARF-M	Botswana, Lesotho, Malawi, Swaziland, Zaire, Zambia, Zimbabwe
ARC 1960	ARC 1960	ARS-M	Kenya, Tanzania
ASCN IS 1958	Ascension Island 1958	ASC	Atlantic Ocean
ASTRO BCN"E"	Astro Beacon E	ATF	Iwo Jima
ASTRODOS71/4	Astro DOS 71/4	SHB	St. Helena Island
ASTR STN1952	Astronomic Station 1952	ASQ	Marcus Island
AUST.GEO1966	Australian Geodetic 1966	AUA	Australia and Tasmania
AUST.GEO1984	Australian Geodetic 1984	AUG	Australia and Tasmania
AUST.GEO1984	Ayabelle Lighthouse	PHA	Djibouti
BELLEVUE	Bellevue (IGN)	IBE	Efate & Erromango Islands (Vanuatu)
BERMUDA 1957	Bermuda 1957	BER	Bermuda Islands
BOGATA	Bogota Observatory	BOO	Colombia
CAMPO INCH	Campo Inchauspe	CAI	Argentina
CANTON AST66	Canton Island 1966	CAO	Phoenix Islands
CAPE CANAV	Cape Canaveral	CAC	Florida, Bahamas
CAPE	Cape Province	CAP	South Africa
CARTHAGE	Carthage	CGE	Tunisia
CHATHAM 1971	Chatham 1971	CHI	New Zealand
CHUA ASTRO	Chua Astro	CHU	Paraguay

Tracker abbreviation	Datum name	Datum code	Locality
CORREGO ALEG	Corrego Alegre	COA	Brazil
DJAKARTA	Djakarta (Batavia)	BAT	Sumatra (Indonesia)
DOS 1968	DOS 1968	GIZ	Gizo Island (New Georgia Islands)
EASTER IS 67	Easter Island 1967	EAS	Easter Island
EURO 1950	European 1950	EUR-M	
EURO 50 ENGL	European 1950 England	EUR-G	England, Channel Islands, Scotland, Shetland Islands
EURO 50 WEST	European 1950 Western	EUR-A	Austria, Denmark, France, Netherlands, Switzerland
EURO 1979	European 1979	EUS	
GAN 1970	GAN 1970	GAA	Republic of Maldives
GEO DAT 1949	Geodetic Datum 1949	GEO	New Zealand
GRACIOSA1948	Graciosa Base SW 1948	GRA	Faial, Graciosa, Pico, Sao Jorge, Azores
GUAM 1963	Guam 1963	GUA	Guam
GUX 1 ASTRO	GUX 1 Astro	DOB	Guadalcanal Island
HJORSEY 1955	Hjorsey 1955	HJO	Iceland
HONG KONG 63	Hong Kong 1963	HKD	Hong Kong
HU-TZU-SHAN	HU-TZU-SHAN	HTN	Taiwan
IND BNGLDSH	Indian	IND-B	Bangladesh
INDIAN 1975	Indian 1975	INH-A	Thailand
INDONESIA 74	INDONESIA 74	IDN	Indonesia
IRELAND 1965	Ireland 1965	IRL	Ireland
ISTS 073ASTR	ISTS 073 Astro 1969	IST	Diego Carcia
JOHNSTON IS	Johnston Island 1961	JOH	Johnston Island
KANDAWALA	Kandawala	KAN	Sri Lanka
KERGUELEN IS	Kerguelen Island	KEG	Kerguelen Island
KERTAU 1948	Kertau 1948	KEA	West Malaysia, Singapore
KUSAIE ASTRO	Kusaie Astro 1951	KUS	Caroline Islands, Federated States of Micronesia
L.C.5 ASTRO	L.C. 5 Astro	LCF	Cayman Brac Island
LIBERIA 1964	Liberia 1964	LIB	Africa
LUZON PHILIP	Luzon	LUZ-A	Phillipines (excluding Mindanao Island)
LUZON MINDAN	Luzon Mindanao Island	LUZ-B	Mindanao Island
MAHE 1971	Mahe 1971	MIK	Mahe Island
MASSAWA	Massawa	MAS	Ethiopia
MERCHICH	Merchich	MER	Morroco
MIDWAY AST61	Midway Astro 1961	MID	Midway Islands
MINNA NIG	Minna	MIN-B	Nigeria
NHRWN MASI	Nahrwan	NAH-A	Masirah Island (Oman)
NHRWN SAUDI	Nahrwan	NAH-C	Saudia Arabia
NHRWN U.A.E.	Nahrwan	NAH-B	United Arab Emirates
NAPARIMABWI	Naparima, BWI	NAP	Trinidad & Tobago
NAD27 ALASKA	North American 1927 Alaska	NAS-D	Excluding Aleutian Islands
NAD27 BAHAMA	North American 1927 Bahamas	NAS-Q	Excluding San Salvador Island
NAD27 CANADA	North American 1927 Canada	NAS-E	
NAD27 CANALZ	North American 1927 Canal Zone	NAS-O	
NAD27 CARIBN	North American 1927 Caribbean	NAS-P	

Tracker abbreviation	Datum name	Datum code	Locality
NAD27 CENTRL	North American 1927 Central America	NAS-N	Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua
NAD27 CONUS	North American 1927 Conus	NAS-C	
NAD27 CUBA	North American 1927 Cuba	NAS-T	
NAD27 GREEN	North American 1927 Greenland	NAS-U	(Hayes Peninsula)
NAD27 MEXICO	North American 1927 Mexico	NAS-L	
NAD27 SANSAL	North American 1927 San Salvador Island	NAS-R	
NAD83	North American 1983	NAR	
NTH SAHARA59	North Sahara 1959	NSD	Algeria
OBSERV 1966	Observatorio 1966	FLO	Corvo and Flores Islands (Azores)
OLD EGYPT"07	Old Egyptian 1907	OEG	Egypt
OLD HAWAIIAN	Old Hawaiian	OHA-M	Hawaii
OMAN	Oman	FAH	Oman
ORD SRVY GB	Ordinance Survey of Great Britain	OGB-M	England, Isle of Man, Scotland, Shetland Islands, Wales
PICODELASNV	Pico de las Nieves	PLN	Canary Islands
PITCAIRN1967	Pitcairn Astro 1967	PIT	Pitcairn Island
PORTO SANTO	Porto Santo 1936	POS	Porto Santo & Madeira Islands
PROV S AM 56	Provisional South American 1956	PRP-M	Bolivia, Chile, Colombia, Ecuador, Guyana, Peru, Venezuela
PROV S CH 63	Provisional South Chilean 1963	HIT	Southern Chile
PUERTO RICO	Puerto Rico	PUR	Puerto Rico, Virgin Islands
QATAR NAT	Qatar National	FAH	Qatar
QORNOQ	Qornoq	QUO	South Greenland
REUNION	Reunion	REU	Mascarene Islands
ROME 1940	Rome 1940	MOD	Sardinia (Sardegna Island)
SANTO DOS	Santo (DOS)	SAE	Espirito Santo Island
SAO BRAZ	Sao Braz	SAO	Sao Miguel, Santa Maria Islands (Azores)
SAPP.HILL 43	Sapper Hill 1943	SAP	East Falkland Island
SCHWARZECK	Schwarzeck	SCK	Namibia
S AMERICA 69	South American 1969	SAN-M	Argentina, Bolivia, Brazil, Chile
SOUTH ASIA	South Asia	SOA	Singapore
TIMBALAI1948	Timbalai 1948	TIL	Brunei, East Malaysia
TOKYO	Tokyo	TOY-M	Japan, Okinawa, South Korea
TRISTAN 1968	Tristan Astro 1968	TDC	Tristan da Cunha
VIT LEVU1916	Viti Levu 1916	MVS	Viti Levu Island (Fiji Islands)
WAKE IS ASTR	Wake Island Astro 1952	WAK	Wake Atoll
WAKE-ENIWET	Wake-Eniwetok 1960	ENW	Marshall Island
WGS84	WGS-84		
ZANDERIJ	Zanderij	ZAN	Suriname

Appendix A – Specifications

Tracker500 and Tracker500i

- **Dimensions**
  500 132mm W x 133mm H x 46mm D.
  500i 132mm W x 133mm H x 88mm D.
- **Display Type**
  STN temperature compensated LCD.
- **Display Matrix**
  100 x 64 Pixels.
- **Input Voltage**
  11 to 16.6 Volts DC.
- **Backlighting**
  15 levels plus off, 5 levels directly available
  from ✳ key.
- **Operating Temperature**
  0 °C to 50 °C ambient (32 °F to 122 °F).
- **Display Scales**
  Distance - 0.1 to 500 nautical miles/miles/
  kilometres.
- **Waypoints**
  500 plus 10 marks.
- **Routes**
  20 reversable of up to 20 waypoints each.
- **Chart Datums**
  106 Datums plus User Adjustable Offset.
- **Navigation Method**
  Rumb line with perpendicular finishing line
  termination.
  Maximum Latitude: 75° N or S.
- **NMEA0183 V2.1 Output**
  APB, BWR, GLL, RMC, VTG, XTE.
- **DGPS Input**
  RTCM 104, 9600 baud, NMEA 0183 or
  RS232 signal levels.
- **Power Use (Tracker500i and Tracker500
  including external antenna)**
  100mA Typical (Backlight off), 125mA
  (Backlight on), plus 25mA per fuel
  transducer.
- **Languages**
  English, French, German, Swedish, Spanish,
  Dutch, Italian.

Tracker500i Fuel Functions

- **Volume Units**
  Litres, Imperial gallons or US gallons.
- **Engine Types**
  Outboard petrol engines 30 to 300hp.
  Inboard petrol engines 45 to 450hp.
- **Number of Engines**
  One or two.
- **Maximum Fuel Flow Rate**
  130 litres per hour (35 US gallons per hour)
  per engine.

- **Fuel Used and Fuel Remaining
  Indication**
  0.0 to 9999.9 litres or gallons.
- **Fuel Flow Rate Indication**
  0.0 to 130.0 litres per hour, 0.0 to 35.0 US
  gallons per hour.
- **Econommy Rate Indication**
  0.00 to 99.99 distance units per volume unit.

Appendix B – Tracker500/500i Installation

Packing List

- GPS Tracker500/500i Display Head, including 2 mounting knobs & 2 washers
- Power/data cable
- Mounting Bracket
- User's manual
- GPS Antenna, *Tracker500 only*
- GPS Antenna User's Manual, *Tracker500 only*

Mounting

Choose a location for the display head that provides good visibility and protects the unit from direct sun and excessive exposure to water.

Select a position that is:

- At least 300mm from a compass
- At least 300mm from any radio
- At least 1.5m from any radio antenna
- Easy to read by the helmsman and crew
- Protected from physical damage
- Accessible for electrical cable connections
- Tracker500i - Must have a clear view of the sky, but can "see" through glass, perspex, fibreglass and fabric.

Once a location is selected secure the mounting bracket with the screws provided in the mounting kit.
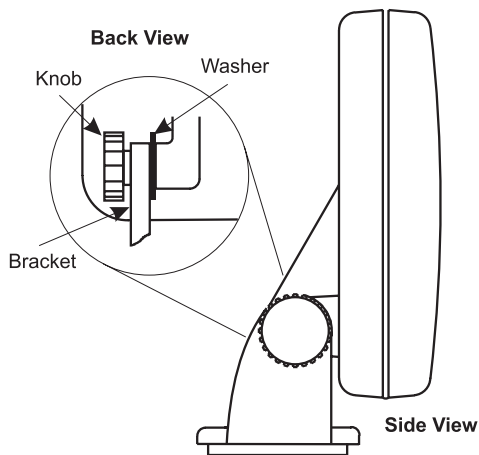
Connecting Display Head to Bracket

Tracker500i   Tracker500
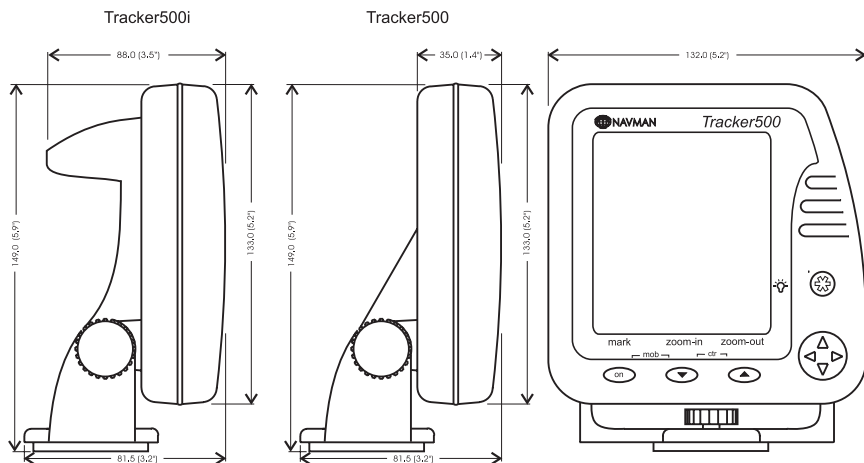
Power Cable Connections

1. Connect the red wire to the positive supply (11-16.6 VDC) via a 1 amp fuse or 1 amp circuit breaker. Connect the cable shield to the negative supply. If possible, route the antenna and power cable away from other wiring on the boat. Electrical noise from engine wiring, bilge pumps and other equipment can affect the display.

For a detailed description of the antenna installation procedure see the separate installation guide supplied with the antenna. **Tracker500 only**
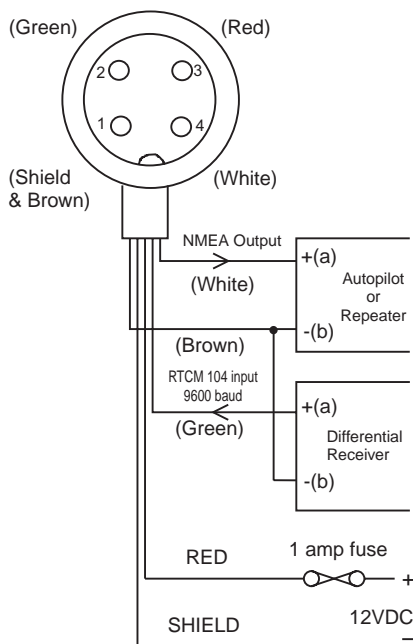
2. Insert the display head, rubber washers and mounting knobs in to the mounting bracket. The rubber washers are located between the bracket and the case of the display head. See diagram.

Five Pin Connector

For a Tracker500, the five pin connector is used for the external antenna.

For a Tracker500i, the five pin connector is used for the fuel transducer. A twin engine fuel kit contains a 'Y' cable to allow two fuel transducers to be connected.

Power/Data Cable Connections

Appendix C – Trouble Shooting Guide

PROBLEM	CAUSE – SOLUTION
Tracker500/500i will not switch on.	Power/data cable not connected or not not fully connected into its socket. Power supply connections reversed.
Tracker500/500i switches itself off.	Check for a poor connection in the power cable causing intermittant loss of power. When the Tracker500/500i detects a large supply voltage surge, it will turn itself off to protect itself. Check for loose battery connections.
Some previously available navigation functions are no longer available. 'GPS FIX LOST' message displayed.	GPS no longer has a fix. This may occur occasionally if the antenna does not have a clear view of the sky. The satellite positions are constantly changing so that their signals can come from any direction. It is essential that the antenna has a clear view of the sky.
Prolonged period to obtain a fix.	This will occur if theTracker500/500i has been moved more than 500 kilometres since it was last switched on, or if it has not been used for several months. The Tracker500/500i will automatically 'search' the sky for all available satellites. this may take a few minutes. This function is fully automatic and requires no user intervention. Subsequent times to first fix should typically be 45 seconds.
Position indicated on Tracker500/500i varies by up to 100 metres from true position.	The USA Department of Defence introduce a varying offset known as Selective Availability (SA). The direction and magnitude of the offset is constantly varying. SA will cause errors typically of 0-100 metres, but can occasionally cause errors in excess of 300 metres. The effects of SA can be reduced with the installation of a differential receiver, if this service is available in your area.
Indicated speed does not match the boat's speed/log instrument.	The constantly changing SA offset results in an indicated speed error that is normally less than 1 knot, but occasionally exceeds 1.5 knots. A Tracker500/500i connected to a differential receiver will not exhibit this error. The Tracker500/500i indicates speed over the sea bed. A speed/log instrument indicates speed through the water. If there is any tidal current, these two will be different. Speed/log instruments are often not calibrated accurately and do not accurately show the boat's speed.

Indicated heading does not match the boat's compass.	The boat must be moving before the Tracker500/500i can determine its direction. The Tracker500/500i BEARINGS setting must be set to MAG before the indicated heading will match the compass. The constantly changing SA offset results in an indicated heading error, usually apparent only at low speeds. The Tracker500/500i indicates the boat's direction of movement over the sea bed. External influences such as tidal currents and wind induced leeway mean that this may not be the same direction that the boat is pointing in, which is what a compass indicates. Magnetic materials on the boat may influence a compass but not a Tracker500/500i.
No/low fuel flow indicated.	Check that the 5 pin fuel transducer connector is fully inserted into its socket on the back of the Tracker500i. Check that the fuel filter(s) in the line are clean. Ensure that the fuel flow transducer has not been exposed to excessive heat or vibration.
Only one flow rate value shown for a twin engine installation.	In the Fuel sub-screen under Setup you must have ENGINES set to two.
Erratic fuel flow readings.	The mounting position of the fuel flow transducer must not be too close to the fuel pump(s) and not subject to excess vibration. Check for air leaks in the fuel hose(s) or fuel pick-up(s) in the tank(s). The filtering level (averaging) has not been set to suit the engine(s). In the Fuel sub-screen under Setup, increase the FLOW FLTR value until a steady flow rate is indicated.
No fuel economy reading.	Check the fuel flow readings are not zero. For the Tracker500i to be able to calculate an economy reading, the boat must be travelling above 5 knots, or above 1 knot if a differential receiver is in use.
Fuel Remaining does not match the amount left in the tank.	Fuel Remaining must be set to the amount of fuel on board after every refueling. Engine has been run without the Tracker500i turned on to record the fuel usage. Fuel transducer calibration is required when the Tracker500i is first installed. Also check all other fuel problems listed here.

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